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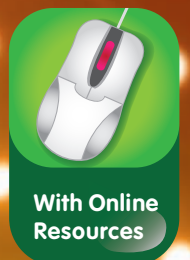


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I.T. applications

vce units 3&4 third edition

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Chapter 2

Online communities

Key knowledge

After completing this chapter, you will be able to demonstrate knowledge of:

- understanding of the problem-solving methodology
- different types of online communities
- types and purposes of online communities
- nature and development of online community websites
- the difference between a closed and open access website
- how privacy, copyright and human rights might affect the development of a website
- using tools to design a website
- characteristics of high-quality user interfaces
- effective information architecture and navigation of websites
- using design tools for planning website solutions
- manipulate data when developing websites
- manual and electronic validation techniques.

For the student

The purpose of this chapter is to explain how the creation of a website can facilitate knowledge sharing within an online community. A problem-solving methodology is described and a case study is provided to illustrate how to solve problems. The case study focuses on using a webpage creation tool to create a prototype website that has provisions for knowledge sharing within a community that has cultural restrictions placed on how information might be shared.

Techniques used for representing designs, manipulating data into information formats and conventions, and managing and transmitting files will be explored.

For the teacher

This chapter provides an overview of problem-solving methodology and an understanding of the role of online communities within our society. The chapter takes the student through a case study of an organisation that is dispersed geographically and explores how you might go about creating a webpage for this organisation. At the completion of Chapters 1 and 2, students will be able to complete Unit 3 Outcome 1, which requires students to design and create a prototype website that meets the need of an online community. Students are also expected to explain the requirements of the networked information system that supports members (users) of the online community.

Websites that support online communities

A characteristic of life in the 21st century is the connectedness that we all share both in real life and online. To many people, being connected online is essential to their everyday lives. Mobile and portable access devices make it easier to stay connected, and websites such as Facebook and Twitter encourage us to share more of ourselves and connect with more people than ever before.

Over the last 20 years, the nature of 'community' has changed from a group of people located in a geographical area who met regularly to share ideas, to people stretched across the world using websites and social networks to share ideas and experiences and to collaborate on projects.

Belonging to an **online community** is more than checking a website once a week or receiving an email newsletter. In an online community face to face meetings are replaced by discussion groups, blogs and interactive events such as surveys and quizzes. Participating in these tasks is part of being an active member of that community.

Online communities have similar structures to offline community groups. Online communities are managed by groups of people who often have online spaces in which to discuss and share information. Some groups have incentive schemes to encourage community members to contribute. There are also hierarchies that define who is a creator, manager or **lurker**, and members of the community often hide behind **avatars** and nick names that reflect their interests.

An **online community** is an online space where groups of people share words and ideas using web-based technology.

A **lurker** is a passive member of an online community who rarely contributes to the group.

An **avatar** is a virtual mask that hides your online identity. A small icon or image is often associated with a user's online avatar or cyber identity.

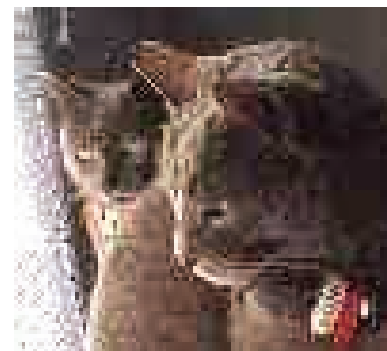
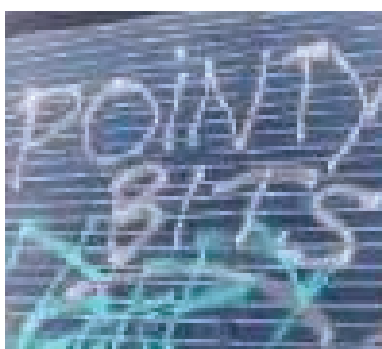
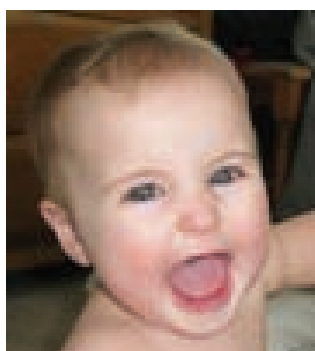


FIGURE 2-1
Examples of avatars

When users choose an avatar, they often choose an image that reflects their interests, such as a pet or an image that they like.

Online communities come in all shapes and sizes and are often set up for a specific purpose:

- to **broadcast** information and events
- to facilitate discussions and **information exchange**
- to store and develop organisational **knowledge**.

Types of online communities

An online community can encompass many different forms of technology which may all be used to serve different purposes. Some online communities are set up as a result of a club or association that has existed in real life, whereas other communities are set up to bring people together who might not otherwise meet without the aid of the online community. For example, a local car club might set up a website to **broadcast** information to their members, such as meeting dates and links to other car clubs. Their focus is still in the physical world, rather than the online world and the website often complements what they would normally do.

However, an online gaming website might be set up to connect people who might never actually meet in real life. The website would provide

forums to discuss and share knowledge of strategies and tactics used when people play the online game.

Online communities can take many forms from the highly structured professional associations to casual social networking sites.

When we look closely at the different types of online communities, we can categorise them into three main areas:

- social networks and communities
- professional or work-based communities
- project- and interest-based communities.

Social networks and communities

Social networking is the new way in which people communicate online and often these communities are quite organic – they grow and evolve as the membership demographic changes.

A **social networking site** is a website that encourages members of its online community to share their interests, stories, thoughts, photos and videos with other members of the community. Individuals can set up an online profile, describe their interests and add links to other users. Users are able to post personal information, photos, videos and blog entries.

There are many different social networking sites and new ones come online every day. Popular social networking sites include Facebook, Google ware, LinkedIn, Twitter and YouTube.

As the title indicates, **social networks and communities** exist with the primary objective of socialising. Within these communities members share thoughts, ideas and general chit-chat about their day to day interactions. Most of the content generated by social networking sites is not adding

Think about IT 2-1

Multiplay <www.multiplay.co.uk/> is Europe's largest online gaming community with over 300000 members. Using the Internet archive machine <http://web.archive.org/>, plot the development of this website from 1999 to 2009. What features did it introduce to meet the needs of its online community?

Two very good websites to check if you want to know more about social networking are:

- Mashable <<http://mashable.com/>>
- Social Networking Watch <www.socialnetworkingwatch.com/>

A **troll** is a person who takes pleasure in disrupting the conversations and activities of others. The term has its origins in fishing, where the term to *troll* is to pull a fishing line behind a moving boat in hopes of coaxing a fish to take the bait. Web trolling is very similar. The trolls try to lure unsuspecting victims into responding to pointless or rude questions or statements. The goal for the web troll is to get the victim riled up as a joke.

Issue

Social networking tools in the workplace

In an article published by Computer world in 2009, it was claimed that 54% of companies ban Facebook and Twitter at work as use of these websites leads to distractions and could 'hurt the bottom line'.

According to a study commissioned by Robert Half Technology, an IT staffing firm, 54% of US companies say that they have banned workers from using social networking sites like Twitter, Facebook, LinkedIn and MySpace while on the job. The study, released today, also found that 19% of companies allow social networking use only for business purposes, while 16% allow limited personal use.

(Source: <http://www.computerworld.com/s/article/9139020/>)

As well as being a distraction in the workplace, there have been a number of instances when someone has said something in a social networking forum that has been deemed inappropriate at the time, and as a result they have been dismissed by their employer.

As new technologies are developed, workplace managements are having to revisit their policy documents more often to take into account access and behaviour in social networking communities.

Google Wave was launched by Google in 2010 to tap into the social networking market where the early heavyweights were Facebook and MySpace. Google Wave allows users to share text, photos and videos in real time. This means that people can communicate with each other and work on a document at the same time. Any participant can reply anywhere in a message and edit the contents. Playback allows users to rewind the wave to see who said what and when. Google Wave will merge email, instant messaging, wikis and social networking.

Social networking sites Facebook and Myspace are discussed further in chapter 2.

to the knowledge bank of the Internet, and many people regard social networks as communities that constantly generate cyber babble.

Social networks and communities develop and grow when groups of likeminded people come together with something to share. Their strength is the simple way in which they allow people to connect. There is no real governance over what they post into these communities; however, most have acceptable-use policies that discourage the posting of illegal content.

Personal profile sites

Facebook, Google Wave, LinkedIn and MySpace allow users to create a profile page that lists their friends and information about themselves. The profile typically includes the following sections: The Wall (comments or thoughts written by the author as well as responses from friends), Information (includes groups the author belongs to), Photos and Videos. Users can search for friends using their email address, school, or by entering their name and location. When the author accepts someone as their friend, they are able to see all of each other's profiles including contact information. Users are prompted when someone wishes to become their friend and can choose to accept or deny their friendship. Users can set the level of privacy on their Facebook to limit who has access to which components.

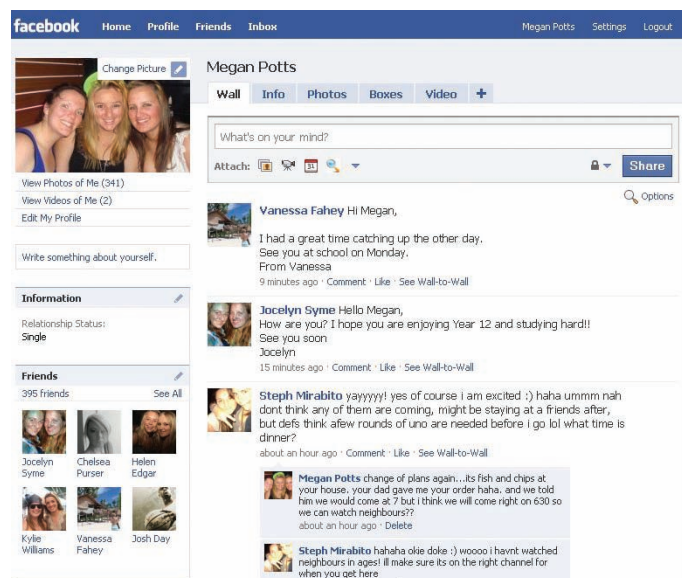


FIGURE 2-2

Individuals use social networking sites such as Facebook to keep in contact with friends.



FIGURE 2-3

Facebook <www.facebook.com> is a social networking tool that allows users to broadcast their status, collaborate on events and knowledge share links to websites of interest.

Facebook

When Facebook was launched in 2004, it had been created as a personal project for students to access at Harvard University. As the popularity of the site grew, so did the membership. In Figure 2-5 we can see that in 2006, Facebook's target audience was college and high school students only. There are now more than 45 million active users, and the fastest growing demographic is women over 55.

As Facebook has grown and become more accessible to mainstream audiences, its features have changed and its demographics are now very different from what they were at the start of the project. Facebook now offers advertising for businesses and the opportunity for businesses to create ‘fan pages’ so that they can brand their product in this environment. So, although it is a social networking environment, it has adapted to include opportunities for businesses and groups to have a presence.

MySpace

The MySpace website <www.myspace.com/> has a similar story. This site originally appealed to musicians who wanted a web presence but didn’t have the skills or money to build a website. MySpace very quickly became an online community for young people to network socially, due to the ease of applying custom wallpapers and music to their site. There have been many issues in the media with young people posting inappropriate pictures and details into MySpace and, as a consequence, putting themselves at risk.

As users migrated across to Facebook, the popularity of MySpace slumped and the site has been reclaimed by musicians looking for a space online on which to share their music and information about their gigs.

Twitter

Twitter is a micro-blogging tool that broadcasts up to 140 characters-worth of observations, thoughts or links to information. In much the same way as sending a text message on a mobile telephone, users can use their mobile devices to broadcast a running commentary of their day, an event they are at, or their thoughts on the world. To add to a greater stream of information, users can use hash tags to categorise their tweets and include them as part of a greater conversation or commentary.

Twitter has found its strength through large events such as elections and natural disasters, as users can get information out to the world more quickly than by traditional media.

The danger with Twitter is that because there is no moderation and the environment is social, most twitter posts have been labelled as ‘pointless babble’. Businesses have seen the potential to access thousands of eyes that they might not otherwise be able to access, and have been jumping on board the twitter phenomenon, using the medium to market their wares and guide customers to their online shops.

The ABC current affairs show Q & A harnesses the power of twitter each week by allowing viewers to send in questions and comments. Tweets with the hash tag # qanda appear at the bottom of the screen throughout the show.

Other social networking tools

The social networking landscape is quite dynamic and every day another site appears online. Additional tools include:

- blogging sites such as Livejournal, Blogger, Wordpress and Tumblr

The number of Australian Facebook users topped 7.6 million in December 2009 – almost one in three of us is on Facebook – and it is quickly closing in on the top site, Google. Include Twitter, MySpace, YouTube, LinkedIn and others, and social media accounted for about a tenth of the time Australians spent on the Internet.

Twitter is a micro-blogging tool that allows users to document what they are doing in 140 character chunks.

<www.twitter.com>

Think about IT 2-2

Compare the number of friends you have in real life with the number of friends you have online. Write an explanation as to whether you believe social networking sites are beneficial or destructive to friendships.

Think about IT 2-3

There are many examples of people being fired after posting something inappropriate in a social networking space. Locate an article online that talks about someone who has been fired for inappropriate behaviour on Facebook, Twitter or MySpace. Why was their behaviour deemed inappropriate?



FIGURE 2-4

The range of social networking sites grows every week. This shows a small representation of the sites available to facilitate social communities.

- social media sites such as Flickr and YouTube allow users to upload, share and view various types of media content such as photos and videos. Most are open to anyone to join, but you may need to get approved to access certain parts or features of these social network.

Issue

How social networking created a legal and ethical minefield

Now that the opportunities to blab to the world – even unwittingly – are flourishing faster than we can count, companies are worried their brands are being damaged by employees making personal revelations on social networks.

Australian sports stars who complain about the omnipresent gaze of the public and media should count themselves lucky their own administrators are still onside. It is a luxury some athletes no longer enjoy in the US, where at least three NFL franchises have reportedly taken to spying on potential employees, using a dastardly form of online entrapment known as the ‘ghost profile’.

It works thus: club is considering paying large amounts of money to promising player in the annual draft; club impersonates young female fan on Facebook and MySpace, befriending player; club gains access to player’s profile and pictures and searches for any sign of future headaches in the form of drug, sex or crime scandals.

They are called ghosts, a source told Yahoo! Sports, because ‘once the draft is over, they disappear’. Justin Smith, creator of the Insidefacebook blog, says the practice is also being used in white-collar industries such

as investment banking, where good character and a sense of judgment are seen as being paramount (if not a sense of privacy or ethics).

In a cnn.com forum, someone calling themselves ‘Nice Guy’ even confessed to using a similar ruse to check on a prospective nanny. ‘I was very relieved to see pictures of a new year’s party that seemed very tame,’ he wrote. ‘Her friends seemed “normal”, along with her boyfriend. I learned a lot about her and was much more comfortable allowing her to watch my kids. What a great tool.’

Spying on people’s self-created profiles is now de rigueur for many employers, recruitment consultants, insurance companies and police, who benefit from the public nature of members’ postings and pictures. In most cases they are gaining access to information publicly available – regardless of whether it was intended to be – and breaking no laws.

A Sydney barrister specialising in personal injury cases, told the *Herald* he had a client with a Facebook page to which access had been gained daily over several months as her insurer searched for evidence she was exaggerating her personal injury claim.

The planned ‘convergence’ of search engines and social media means comments made on personal sites will soon show up as results in online searches.

The blurring of social and professional lives online means serious and growing consequences not just for personal relationships, but for employees and employers.

(Source: JOEL GIBSON, *Sydney Morning Herald*, 16 January 2010)

Think about IT 2-4

Do you think it is ethical for employers to investigate the social network sites of potential employees?

Professional or work-based communities

Professional communities generally have a very clear charter. Websites, discussion areas and mailing lists are set up with a clear purpose and often the community has rules on what and how information can be shared.

Professional communities are generally established to facilitate learning in a particular industry and discussion is kept strictly ‘on topic’. To keep general chit chat away from serious discussion spaces, many of these communities have set up ‘off topic’ areas.

Verification of membership status

Memberships to these communities are often closed, as the site is either owned by a professional association or a workplace. Usernames in these communities tend to reflect the real name of the person behind the account, as often members are looking to build up their professional standing by contributing to discussions.

Unlike social networking sites on which users often hide behind an avatar, members of professional communities are generally truthful about who they work for and what they do.

Building a professional online community

Many professional communities rely on quality content and regular participation from members to drive the community. Social networking sites

Online communities can either be closed or open. **Open** communities allow anyone to join and contribute to the community. **Closed** communities require either a membership or a verification process to ensure that your membership is authentic.

Think about IT 2-5

PoliceOne <www.policeone.com/> is a professional community that has been set up for police officers in the US. The website states that they 'confirm the status of all officers registering for PoliceOne by calling that officer's department directly'.

What would be the ramifications of a non-police officer getting access to this professional community? Why is it important to carefully verify each user on this website?

work well because anyone can post information about anything; within a professional forum there are more restrictions.

A good example of a voluntary professional or work-based community is the Dust Team <www.dustteam.com/>, an online community for Australian crafters who sell their handmade products on the American 'Etsy' <www.etsy.com/> site.

Membership to the Dust Team site is conditional on two factors:

- 1 that the user has an Etsy handmade shop that is 'live' and working
- 2 that the user contributes or posts to the members' forum every two weeks.

The website encourages members to contribute to the knowledge bank of the community by rewarding users who post regularly with a link to the posters online shop from the home page of the Dust Team website. This 'carrot' for small business owners ensures that there is a constant momentum within the community, with users contributing to professional discussions. The majority of the discussion forums are closed to the public, as they deal with issues of small businesses.

Other examples of professional communities

Example of some professional online communities are:

- the Australian Medical Association
- amateur groups that support what you might do in the workplace; for example, a programming forum that might support software developers
- learning communities that are set up within a specific workplace to facilitate information exchange.

Project- and interest-based communities

Project- and interest-based communities are a lot more casual in the way they go about exchanging information and ideas. Most project- or interest-based communities are created by groups of enthusiastic individuals and are often managed and paid for by volunteers. They generally:

- are open to the public
- have free membership
- encourage the exchange of ideas.

Most forums or discussion areas are open to the general public and it is all about celebrating the 'free'. Members of these communities love to share information, tutorials and advice.

Clubs and associations

The most common interest-based community is the club or association.

For example, the Morris Minor Car Club of Victoria operated for years and used a club magazine and meetings to broadcast, collaborate and knowledge share. A few years ago they developed a website for their community. The club website is primarily used as a broadcast tool to share information about events and to provide links to other websites.

Members of Morris Minor UK have taken their website a step further and have set up their own message board, encouraging Morris Minor owners everywhere to discuss and exchange ideas.

Think about IT 2-6

Visit www.morrisminorvic.org.au and www.mmoc.org.uk. Identify three features of the UK website that make it easier for members to exchange information.

Project-based communities

An example of a project-based community is the Handmade Help blog <<http://handmadehelpsout.blogspot.com/>>. When the bushfires ravaged Victoria in 2009, a group of online crafters banded together to help the devastated communities. Together, and mainly through a number of interest-based communities, the crafters worked to raise money and gather resources for devastated communities.



FIGURE 2-5

For groups such as the Morris Minor Car Club, their online activities are often secondary to the physical activities that occur as part of their events calendar.

Their project was called ‘Handmade Help’. Out of their collaborative efforts came the publication *Homemade: The Handmade Help Cookbook*, aimed at raising money for bushfire families. Knowledge was willingly shared to create the cookbook and collaboratively they had the book designed for free before locating a publisher. All proceeds from this book went towards the Victorian Bushfire appeal. The collective identity of the group is shown on many websites and blogs by a small image that links back to the group’s homepage.

Websites that support online communities

A number of websites that support information exchange between online communities have become popular in recent years. These websites include wikis, blogs, forums and social networking sites.

Wikis

A **wiki** is a website that allows users to enter and communally edit its content (Figure 2-7). The website may consist of any number of interlinked webpages that can be edited via a web browser using a simple text editor or, in some cases, a simplified markup language. Wikis are collaborative projects that allow visitors to read what the community has written and by clicking an ‘edit’ button they can add or change anything.



FIGURE 2-6

The Handmade Help identity badge

The most famous wiki is called Wikipedia, a massive online encyclopedia. Wikipedia has become so large (more than a million articles) that you run across it all the time when using search engines such as Google.

Think about IT 2-7

The openness of a wiki leaves it susceptible to vandalism. Wikis, such as Wikipedia, prefer to use 'soft' security rather than adopting restrictive strategies to prevent damage. Find out how soft security works on Wikipedia.



FIGURE 2-7

This wiki is devoted to James Bond films.

Literally millions of people access Wikipedia every week. Each visitor may be one or more of the following:

- a reader, who is trying to find out some specific information
- a writer, who wishes to add a new section to an existing article, or create a new article
- an editor (someone who notices an error in what they are reading and makes a correction)
- a regular visitor who has been given administrator privileges that allow them to delete or undelete pages and to block IP addresses of known vandals (people who cause intentional disruption by entering inflammatory or deliberately off-topic material).

Blog is a contraction of the words web log.

The power of a wiki is that since multiple people can work on the same document, the article becomes the sum of all of their knowledge. This makes a wiki a great source of free information.

Some companies and organisations, such as schools, use a wiki as their internal collaborative software, sometimes replacing intranets and providing group learning opportunities.

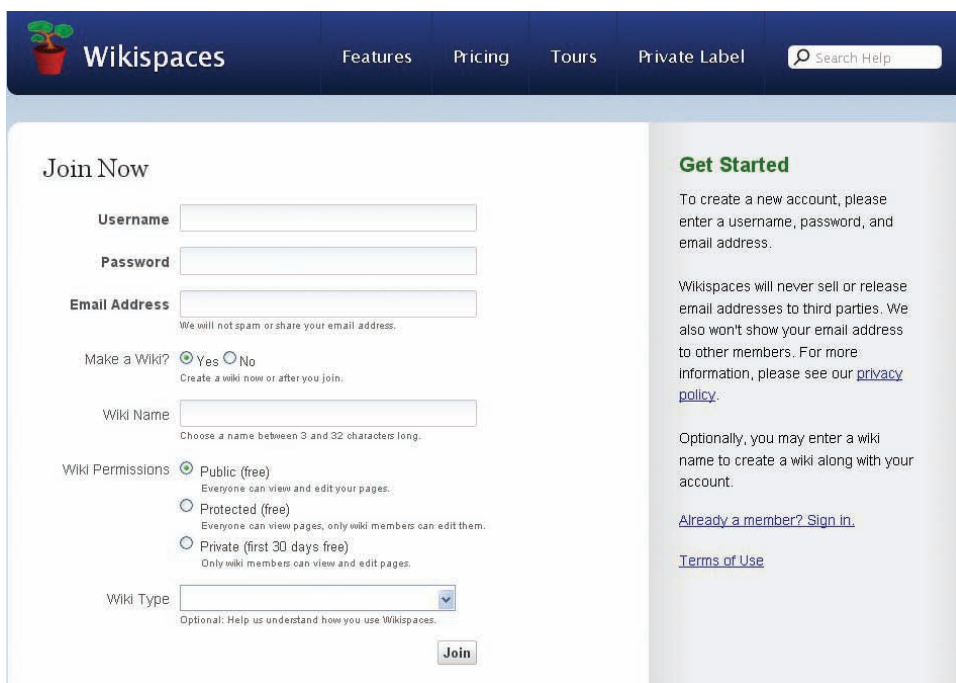
The ease in using a wiki, in part, is due to its openness. Most wikis on the Internet are open to the public and most allow unregistered users, identified by their IP addresses, to edit content. Other wikis limit this function to registered users. Registering is usually a simple and quick process.

Create your own wiki

Wikis are a great way to get your views aired on the web. You can start a wiki on any topic that interests you, and get the opinions and thoughts of other people who visit your wiki. A wiki allows your readers to become part of your website by letting them add their ideas and information to it. There are many different hosting sites on the Internet on which you can start your own wiki. A popular hosting site is Wikispaces <www.wikispaces.com>. On this site basic membership is free, with an unlimited number of visitors and 2 GB of storage. Wikispaces allows you to enter text directly onto the page, insert images and files, add widgets and link to other pages using a simple toolbar.

Blogs

A **blog** is a website that has only one main page and acts like an online journal or diary. A blog is usually maintained by a single author who makes regular entries that include comments, descriptions, news on a particular topic or person, images and videos (Figure 2-10). Entries are recorded in reverse chronological order, so that the most recent entry is at the top of



Wikispaces Features Pricing Tours Private Label Search Help

Join Now

Username

Password

Email Address
We will not spam or share your email address.

Make a Wiki? ☒ Yes ☐ No
Create a wiki now or after you join.

Wiki Name
Choose a name between 3 and 32 characters long.

Wiki Permissions ☒ Public (free)
Everyone can view and edit your pages.
☐ Protected (free)
Everyone can view pages, only wiki members can edit them.
☐ Private (first 30 days free)
Only wiki members can view and edit pages.

Wiki Type
Optional: Help us understand how you use Wikispaces.

Join

Get Started

To create a new account, please enter a username, password, and email address.

Wikispaces will never sell or release email addresses to third parties. We also won't show your email address to other members. For more information, please see our [privacy policy](#).

Optionally, you may enter a wiki name to create a wiki along with your account.

[Already a member? Sign in.](#)

[Terms of Use](#)

FIGURE 2-8

Wikispaces is a popular wiki hosting site.

the list. Each entry is a little text blurb that may contain embedded links to other sites. The author can talk about anything they find interesting or that they think readers might wish to know. A blog will often include a sidebar that contains permanent links to other sites and stories. Blogs are usually public and visitors normally can leave a comment.

You can search for existing blogs by using a search engine. For example, Google <http://blogsearch.google.com.au/> has a blog search feature.



FIGURE 2-9

Nathan Hauritz maintained a blog during the 2009 England Ashes tour.

Creating your own blog

You can either set up a blog using free blogging software and account on a host site, or you can download the free software and set it up on your own website using your domain name and server. Blogger <www.blogger.com> and MySpace <www.myspace.com> are popular hosted blog sites operated by the developer that do not allow software installation on the user’s website. Free and open source software (able to be installed on the user’s system) includes Movable Type <www.movabletype.org>, WordPress <wordpress.org> and Textpattern <www.textpattern.com>.

Forums

An Internet **forum** is an online message board or discussion website that supports online communities. Users are able to visit the forum and add comments that are called posts. A post is included in a block containing the user’s details and the date and time it was submitted. Members are usually allowed to edit or delete their own posts. A thread is a collection of posts, displayed from oldest to latest. A thread is defined by a title, an additional description that may summarise the intended discussion, and an opening or original post that opens whatever dialogue or makes whatever announcement the poster wished. A thread can contain any number of posts, including multiple posts from the same members, even if they are one after the other.

Visitors to a forum are able to post a comment and read and respond to posts from other forum members. A forum can be focused on any subject. An online community, or virtual community, often develops among forum members.

Create your own forum

There are a number of forum software packages that you can use to set up a forum on your website. Internet forum software applications are usually



FIGURE 2-10

Expat Focus is a website that hosts a variety of forums for expatriates living overseas. In the forum above, members talk about life in Australia.

written in either PHP or ASP programming languages. The website hosting the forum site must be able to support either PHP or ASP programs. Free to use packages are phpBB <www.phpbb.com> and SMF <<http://download.simplemachines.org/>>. A commercial package is vBulletin <www.vbulletin.com>.

Purpose of an online community

A real-life community group generally has a physical space where members meet and exchange ideas. This could be a community space, café or club. For an online community it is important to have a portal, website or forum where members can share resources, collaborate on projects, upload documents for sharing and discuss ideas. Regardless of whether the community is an interest, social or professional one, the online space is generally set up with a specific purpose:

- to **broadcast** information and events
- to facilitate discussions, **collaboration and information exchange**
- to store and develop organisational **knowledge**.

Tools used for broadcasting

One of the first tasks of an online community is to broadcast information about the organisation: Who they are, what they do, what is their vision or mission and how you can get in touch with them.

Simple tools used for broadcasting might be:

- a simple website
- a blog set up for the organisation
- an email mailing list
- a twitter account.

Blogging is also a very popular way to broadcast the events of an online community. Other bloggers can then sign up to the blog and using their RSS reader, they can receive updates when the website is updated.

In conjunction with websites, many communities are now using twitter to broadcast events or websites of interest so that they can draw people to their website. The tweets can then be integrated into their website using some simple RSS code.

Tools used for information exchange

Many online communities collaborate on an issue or project at some point in time and this often involves exchanging information. In a professional or work-based community this task might happen with more frequency, but even social-based communities collaboratively plan projects and events.

In order for collaborative problem solving to work well, there are a number of principles that need to be kept in mind:

- Behind every successful project there is a team.
- A clear purpose ensures success.
- Clearly documented processes will prevent misunderstandings.

The first set of principles relates to the formation of the team of people who will be working on the problem. It is important that the team has a **common purpose** and that all the relevant parties are involved in developing the ideas. At the same time, membership of the team should be voluntary. Balancing all this can be difficult.

A comparison of Internet forum software packages can be found at http://en.wikipedia.org/wiki/Comparison_of_Internet_forum_software.

Mailing lists have been around for as long as email has been around and some communities still operate by using a mailing list to broadcast, discuss and exchange information. A mailing list is one of the simplest ways to build community and encourage discussion.

Really Simple Syndication (RSS) allows users to receive content feeds from a variety of sources, including the latest news headlines. When you subscribe to an RSS feed, new stories and updates are automatically delivered to you via a web-based news reader, the moment they are created. RSS feeds can also be embedded into websites and blogs.

Think about IT 2-8

What is the difference between solving problems individually and solving problems collaboratively? Describe the benefits of one strategy over the other.

Online tools used for collaboration can be categorised as asynchronous and synchronous. **Synchronous** (when things are in synch) means that the collaboration can happen in real time using chat or videoconferencing software; **asynchronous** means that there is no timing requirement for the exchange of data. Each team member can respond to the email or discussion thread in their own space and time. Both methods are important when collaborating on a project.

Think about IT 2-9

Write up a strengths and weaknesses chart for each of the collaborative and information exchange tools mentioned.

Once the team is formed, it is important to get the process right. Everyone must have equal access to the relevant information and each member of the team should be respectful of the contributions and viewpoints of others. The problem-solving process itself should be designed by the team rather than imposed from without, and it needs to be developed in a way that ensures that the process is sufficiently flexible to accommodate changing circumstances.

Finally, the goals should be achievable and the project needs to have a time limit. It is important, too, that the participants are accountable for what is accomplished, especially if the team is an interest-based group and not a professional or work-based group.

There are many tools available to facilitate collaborative information exchange:

- A wiki can be used as a collaborative work space for a group. Take a look at www.pbworks.com/ for a free test space to see how a wiki works.
- **Asynchronous** discussion forums or groups can be used to discuss the dynamics of a problem. Take a look at www.lefora.com/ for a free forum space that you can experiment with.
- Mailing lists are a simple tool to use for teams. However, they have the disadvantage of a distributed rather than a collaborative space for information exchange.
- **Synchronous** chat tools such as MSN can be used for collaboration. The group needs to remember to copy the conversation into a space where each group is accountable for decisions made.
- Videoconferencing tools such as Skype are handy if your group cannot get together physically.

Tools for knowledge sharing and exchange

For an online community, the need to manage their knowledge and exchange information is important. For an interest group it might be the minutes of meetings or information about a yearly event. For an organisation it might be operations and organisational knowledge that is important.

Knowledge management is more than saving a document on a computer or server. It is about understanding how important the knowledge is to the community and putting in place the processes to manage access to that information.

Despite the challenges of working in different ways, technology has allowed people to work cooperatively and share information quickly and easily, regardless of time, distance and organisational boundaries. However, a functional online community needs to be more than a group of individuals emailing documents to each other.

Wikis provide an excellent structure for the management of community knowledge. Communities can use a wiki to develop their organisational knowledge and share with others, knowing that they can restrict who can change the information.

Other tools for knowledge sharing might be specialised programs, such as Microsoft Sharepoint, Groupwear or Content Management systems.

What is a collective identity?

Collective identity refers to the individuals within the online community feeling like they are a part of a community.

If you take a look at the craft blogs out there, you will see that there is evidence of a collective online identity. For example, there is a craft group called the Brown Owls which was originally formed in Melbourne several years ago. If you are part of this group, you can put a little symbol on your blog or website to show that you are a part of this collective. The Brown Owls is now represented by members all over the world and the simple logo still appears on member's websites and blogs.

Characteristics of online communities

The membership of an online community will affect how the community grows and operates. If an online community is set up for a group of people to discuss a specific topic, then it would affect the nature of the website if someone not supporting those views were to join the group.

Characteristics that should be taken into consideration when setting up an online community might be:

- gender
- special needs
- culture
- age
- access (public or private).

Online communities appealing to gender groups

There are many websites that appeal to either men or women. There are images and colours that we are conditioned to accept as 'man friendly' and 'woman friendly'. For example, designing a website for a car club might favour a more 'male' approach to colour choice (dark shades), whereas a knitting forum might favour a more 'female' colour choice (light pastels).

Gender can affect not only the way that an online community is presented but also the membership of an online community. A community supporting survivors of testicular cancer might be a **closed community** restricted to men only, to ensure anonymity and confidentiality. Similarly, a group of women discussing post-natal depression might find it uncomfortable if the membership of a discussion forum was open to the general public rather than full of supportive mums who had gone through depression as well.

Of course, online you can be anyone you claim to be! Unless there is a strict verification process, there is nothing to prevent someone registering as a female to get access to a discussion forum. Forum moderators are often on the lookout for the actions of a new member that don't match the expectations of the community, especially if it is closed, and they will quickly ban that user's access to the website and potentially block membership from their IP address if harassment continues.

Online communities appealing to special needs

There are many members of our community who have special needs that might prevent them from physically accessing a computer. A good example of people with special needs might be those who are visually impaired. A website might be designed to take into consideration restricted eyesight or colour blindness. Certain colours might not be used and the font size might be larger, and there might be fewer 'busy' icons and less advertising surrounding the content.



FIGURE 2-11

Brown Owls craft group icon appears on many crafty blogs all over the world.

Think about IT 2-10

What other symbols or badges can you see on websites that show that the owners are part of a collective identity or share a common interest?

Think about IT 2-11

Can you think of any other websites that might restrict access to men or women on the basis of a gender issue?

Users who are sight impaired might access online communities using a screen-reader program that reads out the content for them. One such program is Microsoft Narrator.

Although it is not illegal to mention or show pictures of deceased Aboriginal people, when wanting to use names or images it is culturally sensitive to contact the affected community for permission.

Think about IT 2-12

Can you think of any other cultural groups that might place restrictions on the way in which material is communicated online?

Websites that rely on flash and other multimedia tools are harder for people with special needs to access and read. Tim Berners-Lee stated that 'The power of the web is in its universality. Access by everyone regardless of disability is an essential aspect' <www.w3.org/WAI/>.

Online communities appealing to cultural needs

If you are creating an online community website that needs to appeal to a cross-section of a community, then you will need to consider whether anyone will be culturally offended by the way in which you display information.

For example, television programs that deal with Indigenous content might have a disclaimer that reminds the viewer that there may be pictures of Aborigines who have passed away. Similarly, there are guidelines for the storage and distribution of information about Native American Indians. Even though Western society regards the Internet as a space in which to get 'free' information, many cultural groups want to guard against the misuse of electronic materials bearing their name.

Age-restrictive and age-targeted communities

Age can play a significant factor when creating a webpage for a community. Your community webpage might be age restrictive or age targeted depending on the needs of the community.

- An **age-restrictive** webpage contains content that might not be appropriate for minors. Examples include adult websites or websites that contain mature content.
- **Age-targeted** communities target different age groups through advertising and design. Examples are a website for a retirement village or a children's television program webpage.

Constraints on developing a website for a community

What can often start off as a group of friends sharing ideas online can quickly evolve into an online community that organises events in an effort to support the members of the group.

Although the technical considerations are important, non-technical constraints will play a large part in determining how people gain access to information as part of an online community.

Ensuring privacy in an online community

There are many reasons why you would want to ensure privacy of the members in an online community. If sensitive issues are being discussed, such as IVF or mental health issues, then your members need to feel that they can be open and honest within the online community.

When the integrity of the privacy of an online community is affected, it can be very hard to build trust again, especially if the online community deals with sensitive issues.

Many online communities have their own sets of **protocols** that govern how members must act and how disagreements are resolved. These protocols are similar to the 'netiquette' protocols that most schools have for network use.

UNCORRECTED SAMPLE CHAPTER 2P

Community coordinators can put a number of strategies in place to decrease the risk of an attack on the privacy of the community:

- All requests for membership are properly verified. Some communities have a waiting time of 24 hours on memberships, to prevent people from gaining quick access and doing damage. Word verifications are also used during registration processes to ensure that a person, not a program, is creating the account.
- All passwords must have a combination of letters, numbers, symbols and minimum lengths to lower the probability of a 'hackable' password.
- Community administrators need to be observant to what is happening in the community and quick to pounce on inappropriate behaviour that goes against the **protocols** of the community.

Administrators of an online community need to be aware of the Information Privacy Act and their responsibilities with the handling and collection of personal information. Owners of online communities cannot use collected data for any other purpose without consent. In Unit 4 we will go into greater detail about the current privacy legislation.

Copyright in online communities

When an online community is created for a hobby or interest, the last thing that the community thinks about is copyright. There are several instances of enthusiastic 'fan' communities being forced offline by corporate lawyers because they have overstepped the boundaries of copyright and fair use.

An example of this scenario is the 'cease and desist' notice that Games Workshop has brought against many 'fan' websites. One particular website, Warhammer Alliance <www.warhammeralliance.com/>, was asked to take down its site, for overstepping copyright boundaries. Even though the online community was all about encouraging the playing of the popular Warhammer game and the purchasing of products from Games Workshop, the Games Workshop lawyers have taken it to task over its encouragement of discussions and the development of additional rules for the game, which fall into copyright territory.

When setting up an online community, copyright legislation needs to be taken into consideration. Do you own the images and text that you are using on the website? Are you infringing on the copyright of others by broadcasting discussions and ideas in an open forum? In Unit 4, we will go into further detail about the current copyright legislation.

Human rights requirements

When creating an online community, the design and content of the website must not impinge on the human rights of anyone. There is a Human Rights and Responsibilities Charter that covers members' freedom, respect, equality and dignity.

An online community should not:

- encourage hate crimes or the religious vilification of others
- discriminate on the basis of gender, culture or sexuality
- encourage the victimisation of members of the community.

In addition to these human rights requirements, the charter states that you must not authorise or assist others to engage in any of these activities.

Think about IT 2-13

What other privacy issues can you think of that might impact on the development of a website?

The Australian Government has set up an extensive website <www.privacy.gov.au/> that deals with privacy.

The Australian Copyright Council <www.copyright.org.au/information> has an excellent webpage that explains what copyright is and how you can avoid infringing on the copyright of others.

The Victorian Human Rights Commission and its charter can be found online <www.humanrightscormission.vic.gov.au>.

Online communities need to have clear policies to deal with members who go against the Charter.

Problem-solving methodology

When you discover a problem, do you instantly understand what is wrong and how to fix it? Very few people are successful with this approach and almost no one can approach a problem without a plan, especially when you are dealing with more complex problems. To help us to approach problem solving in a way that is successful, a planned strategy is always recommended.

A problem-solving methodology is a structured approach to creating a solution that uses a specified procedure or series of steps. These steps cover the important stages of problem solving and help to ensure that the problem is explored in a methodical and logical fashion and that the ultimate solution fixes the problem.

The problem-solving methodology that we will use comprises the following stages:

- 1 Analysis – define and understand all aspects of the problem.
- 2 Design – create a plan for the required input, processing and output.
- 3 Development – build the solution with either off-the-shelf or custom-made hardware or software. Development also includes testing the solution to ensure it functions the way that you expect it to and documenting how the user might use the solution.
- 4 Evaluate – establish that the solution is meeting the needs of users after a specified period of time.

Within this chapter we will be taking an in-depth look at the first three stages of the problem-solving process: Analysis, design and development. In Chapter 3, we will continue our investigation of the stages of problem solving by considering the development and evaluation of a solution.

Within this chapter we look at using the problem-solving methodology to solve an information problem that deals with online communities. The case study that we will be looking at is the Indigenous Language Trust, a non-profit community group aimed at preserving and developing Indigenous language in Australia.

Without a structured approach and framework, problem solving can become a 'hit or miss' affair. It is important, therefore, to adopt an agreed structure to solving problems. The obvious advantage of consistency is that when new problems arise, individuals or groups know which approach to follow.

The problem-solving methodology used here works best when the desired solution is an information product or a number of information products.

Analysis of the problem

In the analysis stage we focus on understanding why the problem is an actual problem and we rigorously analyse all the factors that might affect the solution. At this stage lots of questions are asked, to ensure that the scope of the solution is complete before we move on to the next phase of the problem-solving methodology.

When we analyse something, we determine the scope, requirements and factors or constraints that might affect the solution. This analysis often

CASE STUDY:

Indigenous Language Trust

The Indigenous Language Trust (ILT) is a non-profit community group aimed at preserving and developing Indigenous language in Australia.

The trust was set up 23 years ago when local Aboriginal elders realised that Indigenous language in Australia was slowly dying. When ILT first began, there was only one office in Melbourne. Within five years another office had opened in Albury and there is now an office in each capital city.

Over the year, each of these offices worked independently to build up its expertise and contacts within their local communities. Exchange information between the offices has been difficult, due to the different time zones. Recently, as part of a government initiative, a consultant was brought in to review the work practices of the group and to identify ways in which the community could exchange information more efficiently.

At the conclusion of the review, the consultants identified that the ILT would benefit from a website that would support information exchange between offices.

At the heart of an online community is its ability to exchange information. Many do this by using blogs, chat rooms, forums, social networking site and wikis.

takes time and effort, but often it is time well spent, as all aspects of the problem and solution need to be understood.

A systematic analysis also looks at the needs of all users or stakeholders – this will help to identify all of the possible solutions. In most cases, there is more than one possible solution, and each solution needs to be considered on its merits. Choosing the best possible solution can only be done after considering all facets of the problem and the needs of the users.

The **analysis** stage can be a complex and involved process. There are a number of steps that should be followed:

- 1 Determine the solution requirements.
- 2 Identify the constraints on the solution.
- 3 Determine the scope of the solution.

Determining the solution requirements

In determining the solution requirements, you need to establish what information needs to be provided, what data is needed and what functionality must be included.

Defining the problem

An information problem exists if the needs of an organisation are not being met. Investigating the circumstances that result in an organisational goal not being met should lead to the identification of the problem. Once the general area of a problem has been determined, the first step in problem solving is to define the problem.

To 'define' something means to describe clearly and precisely what it is. The most effective way to define a problem – that is, to clearly identify it – is to write it first as a simple problem statement and then to rewrite it as a question that directs or indicates a desired course of action.

Refer to the PSM on page xx for more explanation of the analysis stage.

Napoleon is quoted as saying that 'time spent in reconnaissance is never wasted'. The time that you spend analysing an enemy, or in this case a problem, is never wasted and can often save a lot of confusion at the end of the process as all avenues have been clearly thought through.

CASE STUDY:

ILT – DEFINING THE PROBLEM

The Indigenous Language Trust (ILT) has been operating for years and the mode in which members exchange information between offices has been inefficient. Each office has its own data and information, and to exchange this information using traditional communication methods such as telephone, fax, mail and email takes time and often results in the mismanagement of information across the organisation. This affects the quality of information within the organisation.

How can the ILT exchange information with minimal effort, yet maintain the quality of the information exchanged?

For example, a problem can be expressed as a question. Consider the situation in which residents are continually ringing their local city council for information that is freely available on the Internet. What is the problem from the perspective of the council? The council has an established goal of providing residents with access to municipal information on the Internet. The problem is that people may not know that the information is available and they are therefore interrupting the daily operation of the council by ringing for information. If we recast this problem statement as a question, it becomes: How can the council encourage people to use its website?

Sometimes the question that first comes to mind is too complicated. If this is the case, the question, should be broken down into several questions so that each one is simple enough to be understood and answered. The aim is to ensure that the problem is clear enough that we can begin to **effectively** analyse it and then **efficiently** solve it.

The organisation needs to confirm that the problem definition is correct, that all components of the problem have been recognised and that the question, when solved, would allow the organisation to meet its goals.

Efficiency refers to the time, cost and effort that might be put into producing an information solution. A solution can be inefficient in the way it was produced, but then be effective in the way it communicates information.

Effectiveness can be defined by the quality, relevancy, timeliness and clarity of the information product. A solution can be produced effectively but then be inefficient in the way in which it communicates information.

CASE STUDY:

Indigenous Language Trust

Sometimes the information required might not be obvious. In the case of the ILT, the exchange of information needed in an online community needs to be carefully analysed. Analytical tools such as data flow diagrams might be used to identify what information is being currently exchanged between the offices and where the information problem is.

When considering the information required, we need to get a clear understanding of the layout of the information in question. In the case of the ILT, each office needs to be able to get access to the knowledge stored by each other office. It doesn't have to be processed to look like a publication; it just needs to be available to each office in a simple format.

UNCORRECTED SAMPLE CHAPTER 2P

Determining the data requirements

The data selected for use in the solution may be subject to certain constraints. These **constraints** need to be considered carefully in the selection of appropriate inputs.

Designing the solution

Every solution should undergo a rigorous design phase before there is any attempt to develop the solution. The analysis stage should provide the designer with solution requirements, solution constraints and a scope of the solution. Much time can be wasted if a design has not been properly planned before work starts on development.

Users want a well-constructed website that provides the necessary information without having to sift through unwanted material. They also want a website that does not take a long time to load. Websites with many large images or movies can take a considerable time to load. This can be off-putting and frustrating to users, especially those using slow internet connections.

Visitors to websites need to locate information efficiently. Visitors do not want to waste time second-guessing navigation systems to find what they are after. The site's navigation needs to be clear and concise. Websites need to be informative, as there is very little purpose in building a website that doesn't provide visitors with meaningful information.

An **efficient** website is one that takes little time, little cost and little effort. There are a number of techniques that web developers can use to ensure that their website is efficient.

- Reduce the time spent making pages by using templates and Cascading Style Sheets.
- Reduce the **time** spent waiting for a page to load.
- Ensure that all images are in a smaller format or use thumbnails so that the page will load up with minimal effort. Generally, people will only wait a few seconds for a page to load, before aborting and going to a different site. A typical thumbnail image is 30 kB. It would take less than one second to load at 512 MB. The normal, full size image would be approximately 150 kB. Some users will be using mobile devices to access the Internet, so file size should be taken into consideration.

An **effective** website makes it easier for the user to find the information they are after and makes it easier for them to understand how to move through the website.

- Check to see that the appearance of the website is not affected when different web browsers are used. Even though the code behind the websites is in HTML, the Internet Explorer and Netscape browsers interpret HTML statements differently.
- Make it easier for the user to navigate through the website by allowing the colour of a visited link to change when a visitor has clicked on it before. An indication of past navigation helps users understand their current location. Knowing that they have visited a site previously makes it easier for the user to decide where to go next, and frees the user from unintentionally revisiting the same pages over and over again.

Think about IT 2-14

How long are you prepared to wait for a webpage to open? Would it make a difference if it were an information site for a school project, a general site that you found while doing a Google search, a sports results page or a personal interest site?

Think about IT 2-15

What is the advantage to an organisation of developing and implementing an early prototype website rather than waiting longer and going straight to rolling out of a fully functional, all-encompassing website?

- Keep the layout consistent throughout the website. A consistent design and look makes it easier for visitors to locate information.
- Clear, consistent layouts help people with visual impairments or learning disabilities who have difficulty using a disorganised navigation scheme. There are several ways to indicate navigation within a website. Icons or text can be used to link from one page to another. Whichever is used, it is important that the method is consistent within the website.
- Information needs to be clearly displayed on the website. Keep background images to a minimum. People with colour blindness or impaired vision can have difficulty reading information at sites with busy backgrounds and dark colours.

A design issue that needs to be considered is the use of sound. Sound can present a barrier to users with a hearing impairment. The use of captions or transcripts provides users with another method of accessing these resources.

There are several steps that should be followed within the design stage of problem solving:

- identifying the how the solution will function
- identifying how the solution will appear
- identifying evaluation criteria

Identifying data and information needed for the solution

During the analysis stage of problem-solving it is important to understand the type of information that is needed for the solution. As we are dealing with online communities, we need to clearly identify how the solution will provide the end user with the information they need.

In order to produce the solution, we need to identify where this data is coming from. Is it produced by the organisation or gathered from outside the organisation?

Analytical tools such as context diagrams or data flow diagrams might be used to clearly identify how data is being used within an organisation. This, in turn, might assist us in identifying the functions needed in the online community to facilitate information exchange.

Identifying the functions needed for the online community solution

When identifying the functions needed for an online community, we can separate these functions into two distinct categories:

- How the solution might **function**
 - Do we need to broadcast information?
 - Do we need to exchange information?
 - Do we need to store our knowledge in a central location?
- **Attributes** the solution might possess
 - How **user friendly** does the solution have to be? How easy is it to use?
 - How critical is the solution to the online community? How **reliable** does the solution need to be?
 - Does the website need to be accessible from mobile devices (is it **portable**)?
 - How many people will be accessing the online community at any one time (**robustness**)?
 - Who is going to **maintain** the different sections of the online community?

The **function** of a website can be determined by its ability to:

- broadcast information
- exchange information
- store knowledge.

Think about IT 2-16

Identify areas of your school website that broadcast, exchange and store knowledge.

CASE STUDY:

ILT – Identifying information needed for the solution

During the analysis phase of the problem-solving it is important to identify how and what information the organisation wants to exchange. Careful observation and identification of current practices should assist in identifying what information is needed for the solution.

In the case of the ILT they might exchange:

- contacts – for example, who can we contact for advice?
- policy documents – for example, regarding the management of images of deceased people
- documentation regarding local Indigenous history – for example, images and audio files in which elders talk about their region
- information regarding national cultural heritage – for example, statistics regarding population, literacy and health issues.

The data for this information might come from within the organisation, such as the policy documents, or from outside the organisation, such as information regarding local Indigenous history. The origin of the data needed will affect how we design the solution. Parts of the online solution might need to be closed to the public, and other parts might need to be open to the public to encourage information exchange within the wider Indigenous community.

The analysis phase

As discussed earlier in the chapter, there are many ways in which an online community might operate.

Constraints on the solution

As mentioned earlier in the chapter, constraints can affect the way in which we design and eventually solve an information problem. At the analysis phase of the problem-solving process, we need to determine the technical and non-technical constraints.

Technical constraints include:

- the cost of the solution; this might determine whether the organisation uses freely available tools or tools to which they subscribe
- the speed or time that it takes to access or exchange information
- how secure the solution needs to be, and whether the solution needs to be closed or open to the public
- the number of people accessing this online community at the same time.

Non-technical constraints include the requirements of users:

- Are there issues of privacy when exchanging information?
- Are there copyright issues that need to be taken into consideration?
- Are there cultural constraints that need to be considered?

Attributes of a website might involve:

- ease of use, user friendliness
- reliability
- portability
- robustness
- ability to be maintained.

For the purpose of the Outcome for Unit 3, you will be provided with data and information suited to your online community. This might be a range of images, characteristics of membership and a description of the needs of the members.

CASE STUDY:

ILT – Functions of the online community website solution

In analysing the functions needed for the Indigenous Language Trust online community, the following decisions were made about the functions of the website:

- to **broadcast information** to the community (open) about events and the projects they are involved in
- to **exchange information** between offices about projects they are working on and any challenges they are having (closed)
- to encourage community groups to **exchange information** in a secure environment
- to store documents containing **knowledge** about the organisation in a central secure environment.

These are the attributes of the website:

- Most of the employees of the Indigenous Language Trust are confident using applications associated with day to day office tasks, but not many have experience in the online environment. The user friendliness of the solution needs to be high.
- Although the online community will become essential to the operation of the Indigenous Language Trust, the operation of it is not critical to the day to day workings of the organisation.
- Maintaining the solution needs to be done by someone within the organisation. If it is an existing person, then the maintenance needs to be manageable.

Scope of the solution

When determining the scope of the solution, we need to carefully consider the benefits the solution will have on efficiency and effectiveness within the organisation. The scope should clearly outline what the solution can and can't do, and clearly state the boundaries of the solution. The scope should provide the design stage with guidelines so that an appropriate solution can be designed.

CASE STUDY:

ILT – Identifying constraints

Identifying the constraints is sometimes not straight forward. We can clearly calculate how many people work in each of the Indigenous Language Trust offices and determine the technical constraints that need to be taken into consideration, but the non-technical constraints are often much harder to determine.

In the case of the Indigenous Language Trust, there are strict rules regarding the use of images of deceased Aboriginals and the use of their names on public documents.

UNCORRECTED SAMPLE CHAPTER 2P

CASE STUDY:

ILT – Scope of the solution

Using the Indigenous Language Trust case study, we can clearly identify the benefits the solution will have to the efficiency of the organisation.

- **Time** – The time taken to access and exchange information via a website solution should be reduced.
- **Cost** – The cost associated with information exchange will be reduced by allowing people working in each of the offices to access centrally located documents and to easily exchange information by electronic means.
- **Effort** – The sharing of information will allow each of the offices to build on the information they have, rather than having to rediscover it when working on a project.

The effectiveness of the solution might include the following:

- **Quality** – The quality of decision-making will be higher due to the collaborative nature of information exchange.
- **Relevancy and timeliness** – Information that is broadcasted to the public is relevant and timely.
- **Completeness** – Information that is compiled using collaborative tools by the online community will be more complete.

To identify benefits in terms of efficiency and effectiveness, we can use the definitions of these two terms to help us through this stage.

Text-based information

Standard grammatical and punctuation rules apply to text generated on computer. These rules govern the use of elements of writing and presentation, such as paragraphs, spacing after punctuation marks (such as commas and full stops) and the appropriate use of capital letters. There are other general conventions:

- Numbers between one and nine are usually written in words and above that as figures, except at the start of a sentence.
- Text presented in columns, similar to a newspaper format, is usually aligned to the left or fully aligned (also known as ‘full justification’).
- Fonts and styles are used consistently.

Designing a website solution

Identifying how a solution will function

When we talk about **functionality**, we often make a list of everything a piece of hardware or software can do. When we are designing a solution for an online community, the process is very similar. Taking into consideration the technical constraints of the solution, we can use a range of design tools to show the **function of a solution**, and how the solution will work and relate to other websites.

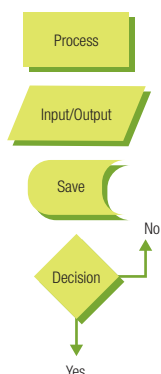


FIGURE 2-12
Simple flowchart symbols

A **hyperlink** is a connection or a link to another website or webpage.

Please refer to Figure 2-xx for an example of a site map for the Indigenous Language Trust website.

Such tools include:

- **IPO charts** to show how data is processed into information
- **flowcharts** to show how to gain access to data and information
- **layout diagrams** to show how a page on the website might function
- **website maps** to show navigation throughout the site and identify if pages are closed or open
- navigation design using **style sheets**.

IPO charts

An **IPO chart** (input–process–output) can be used to show how data is processed into meaningful information. An IPO chart, also called a ‘defining diagram’, identifies what data is required for the solution (input), what information the solution needs to produce (output), and the processing steps required to transform the data into information, or the function of the solution.

Flowcharts

A **flowchart** can be used to indicate how a member of the online community might gain access to information or how a solution is produced. A flowchart uses symbols in a linear sequence to document each procedural step required. A simple set of symbols is shown in Figure 2-13. The flowchart should indicate some details of the procedures to be followed to produce the solution and output.

Layout diagrams

A **layout diagram** or **style sheet** can show how a webpage will function. What happens if we click on this link? What happens if we type in an account name and password?

Website map

A **site map**, or a linkage plan, is a graphic representation of how the pages of the website link together. It is commonly hand-drawn as a series of boxes attached to each other. It gives the designer an overall picture of how large the website will be and how each page is linked. A site map shows interrelationships between the webpages. For example, the ‘Events’ page is linked to the ‘Projects’ page (see Figure 2-10).

The site map for the Indigenous Language Trust consists of both a public (open) and private (closed) area, which is linked to other pages

To make it easier for a user to navigate through large documents or multiple webpages, the designer can use **hyperlinks**, icons, buttons and page numbers. These techniques help the user to find the information in which they are interested.

Information architecture refers to the structure of the website and its navigation pathways and often this is communicated through a **website map**. If a user cannot navigate through a website, they will quickly leave. Thus, designing effective **navigation** on a website is crucial.

An effective website has an architecture and navigation system that ensures that people visiting the website are aware of the purpose of the website, can find what they are looking for and can contact someone in the organisation.

A website map clearly shows every page in the website and how they relate to each other. It also indicates which pages are open or closed to the public and how the website relates to other pages on the Internet.

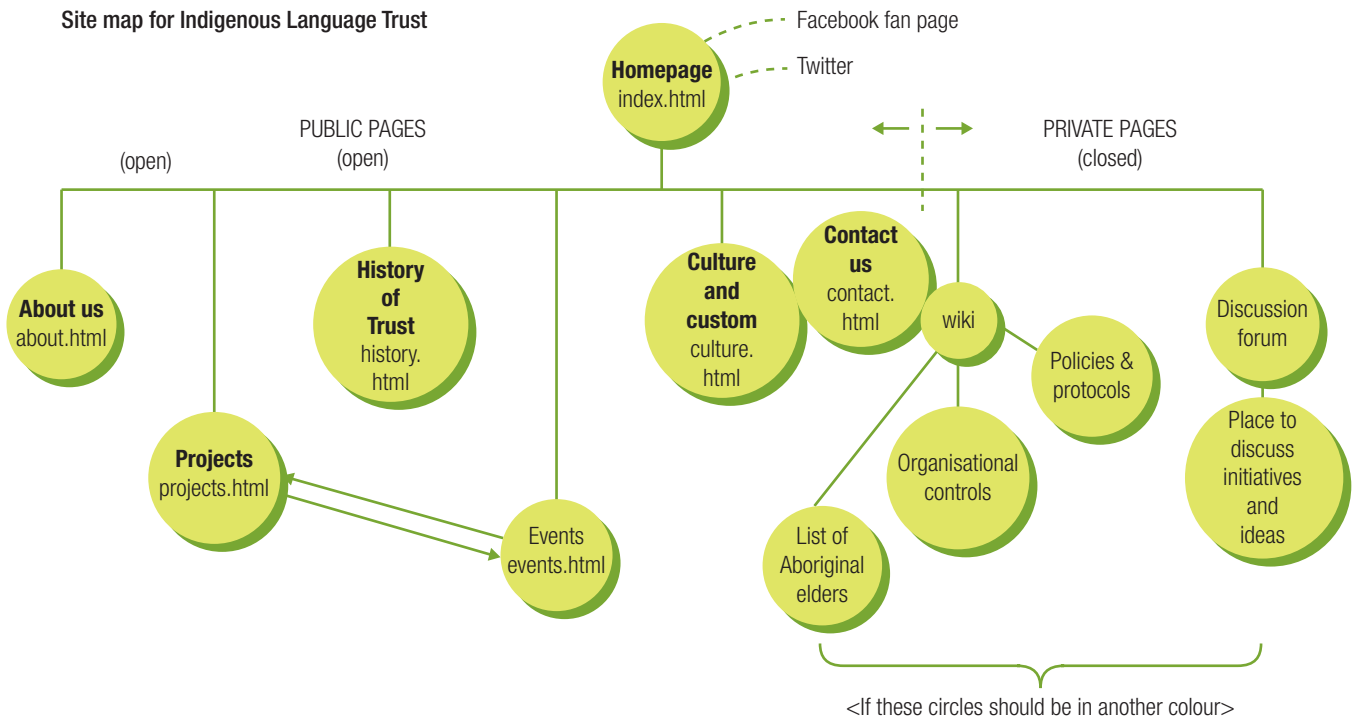


FIGURE 2-13

An example of a possible web map for the ILT website

Navigation design

Once the function of a website has been planned thoroughly, the navigation paths must be determined. The following structures need to be considered when designing navigation paths.

Most websites generally have their navigation bars at the top or on left-hand side of the webpage. Although there is not a widely accepted convention as to where navigation bar is located on the screen, in order to ensure that the website is easy to use, the designers may wish to adopt a common location for it on each page.

Navigation design can be a linear listing on the webpage, a drop-down menu or a tickler that runs across the top of the page as you navigate the webpage. Whatever the choice, the navigation design must be the same throughout the website. The use of a common style sheet for each web page can ensure consistency across the website.

Accessibility

Given there are many different Internet browsers, and different versions of **plug-ins** that can be used, it is advisable to avoid using special effects created in software such as Flash, Java, or JavaScript as the only navigation method. The website needs to be accessible to all employees of the Indigenous Language Trust, and this is especially true of navigation design.

A **plug-in** is a program that enhances the capability of the Internet browser. It is used to enhance multimedia.

Think about IT 2-17

What would be suitable icons to use to represent the following?

- Contact details
- Return to thumbnail views of images
- Download an audio file
- Look at future events

Think about IT 2-18

Suggest a file-naming strategy for a series of images of children at a primary school athletics carnival that are to be included on a school's webpage. It is likely that similar images will be used in future years on the same site.

A style guide will tell you exactly how to format communication for that organisation. Often style guides will show you how to layout a page and how to use a company logo so that all correspondence looks as if it comes from that organisation even though many different people have produced it. When designing a website, we need to be mindful of style guidelines.

Think about IT 2-19

Can you name some common website conventions?

The labels of icons used for navigation should be **meaningful** and the links need to be clear in case there is an issue with the loading of images. This step in developing a website is often forgotten, but much appreciated by people who have slow Internet connections or who have images turned off for ease of browsing. If you are developing a website for the Indigenous Language Trust, then you can assume that the website would need to be accessed by people in remote Aboriginal communities.

Common use of icons to link the website to social networking tools such as Facebook and Twitter can be used, as they are an **accepted convention**.

To ensure that the website remains **consistent** and has a similar feel about it on all its associated pages, navigation should appear on **every page** of the website. The basic structure of the navigation should remain consistent throughout the website, with only minor changes used to indicate location within the hierarchy. It is often desirable to have a link back to the home page on each subordinate page to keep the user browsing your site and if there are any links to other webpages, you can direct the HTML to open in a new window.

File naming conventions

Naming of files

The index page is the first page, or home page, that appears as you open a website. It is sometimes referred to as the default page. The filename of this page is usually named index.htm, index.html or default.html, depending on the service that is hosting the website.

Filenames should be kept short and meaningful. They are easier to read in lower case than upper case. Every webpage must be saved with a unique filename. Filenames are usually limited to 16 characters and contain only letters, numbers or the underscore symbol. Also, filenames of images need to be meaningful. Rather than referring to photos as numbers such as 11000.jpg, it is more appropriate to provide the filename with a name that summarises the photo, such as camel.jpg. When there are many photos on a website, it becomes tedious to search through files that are referred to by number.

Identifying how a solution will appear

We understand that the function of website is important, but a website is worthless unless the interface is suited to the end user.

Choosing conventions and applying formats

Formats and conventions are terms that are applied to the layout and presentation of output.

To 'format' means to create and/or change the appearance of a document by altering features such as fonts, margins, spacing, columns, tables, graphics, borders, page numbers, headers and footers. Formatting looks at the presentation of the layout and its suitability.

Conventions are simply formal ways of displaying information. They are rules that people follow when creating information products. An example of an everyday convention is the way envelopes are addressed for mailing. When designing a webpage, an accepted convention is for a navigation bar to be at the top of the webpage and details of authorship, copyright and privacy are at the bottom of the webpage.

At the analysis phase, we identified the **non-technical constraints** and we can represent these using a form of design tools.

Mock-up diagrams

A **mock-up diagram** is a sketch of the actual website that the designer is going to develop. A mock-up diagram can be drawn by hand or in a drawing package such as Illustrator, with headings in place, and spaces left for the text that needs to be inserted. The text inserted is usually in ‘pig Latin’ and does not have any meaning. Figure 2-15 shows an example of the text inserted in webpages that are at mock-up stage or in infancy.

Lorem ipsum dolar sit amet, consectetur adipiscing elit. Aliquam sed justo. Etiam ligula risus, eleifend et, lacinia sit amet, tincidunt at, enim. Etiam sodales risus eu lorem. Class aptent taciti sociosqu ad litora torquent per conubia nostra, per inceptos hymenaeos. Mauris ornare arcu quis mi. Duis rutrum lacus id metus. Nulla tincidunt tortor ultrices est. Sed eu leo. Sed sed arcu et orci lacinia rhoncus. Nulla ullamcorper. Duis imperdiet sem dictum eros. In rutrum. Maecenas nulla. In interdum mollis purus. Aliquam ac leo ut arcu tempus dignissim. Aenean eu velit et leo porta aliquet. Suspendisse a augue non odio dictum convallis.

(Source: www.lipsum.com)

FIGURE 2-15

Many desktop publishing packages and webpage editors use the ‘Lorem Ipsum’ Latin Text as their default model text, to avoid having the reader distracted by the content.

A mock-up is literally a picture that approximates what a webpage will look like, including layout, colours, fonts and general graphics. This mock-up will serve as the basis for the entire website. The purpose of the graphical mock-up is to offer a clear idea of what the final product will look like.

Layout diagrams

A distinctive style is required to give the website a strong identity. **Layout diagrams** provide a visual representation of how the final product should look. Layout diagrams are usually drawn by hand and contain information such as where particular text and graphics should be located.

Typically, many attempts will be needed before the layout of the webpage is exactly right. Figure 2-16 shows an early version of a layout design sketch for the Indigenous Language Trust. Layout diagrams for the

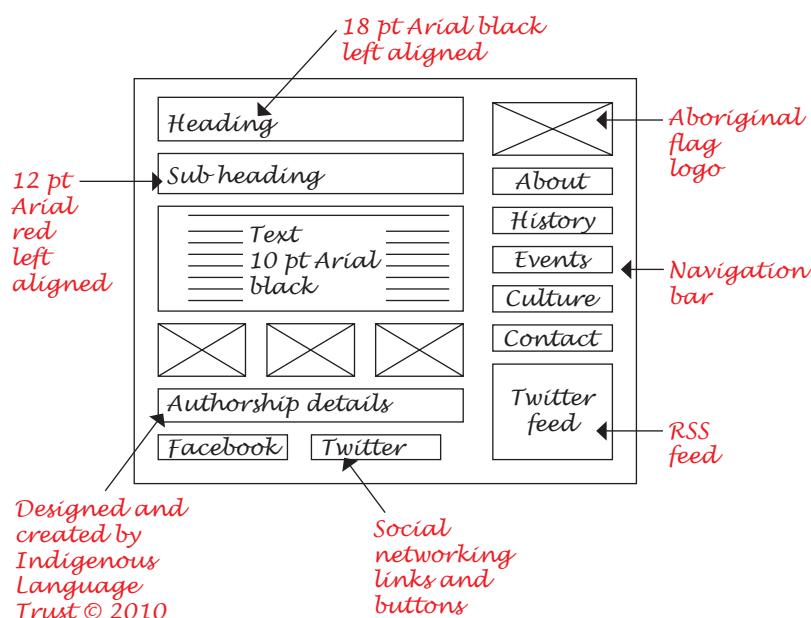


FIGURE 2-14

A layout diagram is used for planning a website for the Indigenous Language Trust.

Indigenous Language Trust would include the organisation's logo and have features such as variation in font size, colour and positioning of text. The placement of text and graphics must be planned so that a balanced visual effect is achieved.

Storyboard designs

A webpage **storyboard** is a tool used to design the features of each individual page. Storyboards show general screen designs and the placement of graphics, and describe actions and links to other pages. The main part of a storyboard is the drawing of how the website should appear.

Other features that should be included in a storyboard for a webpage are:

- client's name, e.g. Indigenous Language Trust
- designer's name, e.g. Infectious Designs Ltd.
- page number
- background colour code
- image filename
- optimal screen dimensions (important if the solution is portable)
- purpose/description
- a list of required image filenames and their file size
- a list of the required link filenames.

The Indigenous Language Trust storyboard will require some basic information on the project, such as the name of the company, the number of storyboard pages in the completed design and the screen dimensions. Further information is also required, such as name and size of the graphic files used on this page, and the links that are directed from the index page to the other pages. A brief hand-drawn layout of the screen is also necessary. Figure 2-15 shows the storyboard design of the Indigenous Language Trust website.

A storyboard is a common tool for a wide variety of presentations, not just webpages. Storyboards are used to help film makers design the sequence of scenes needed for their production.

UNCORRECTED SAMPLE CHAPTER 2P

Storyboard for <i>Dean</i>		Page	1 of 6
Client <i>Indigenous Language Trust</i>		Date	6 March 2010
Designer		Screen dimensions	1024 x 768

Heading

About us ← Red 10 pt Arial

Body text 10 pt Arial

Pictures of us

Flag

About

Projects

History

Culture

Contact

Navigation buttons

All text left aligned

Purpose/Description <i>A page all about the ILT</i>		Page title <i>About us</i>	
		Filename <i>about.html</i>	
		Links	
		Link name	Link to
Graphics		<Flag>	<i>index.html</i>
Filename	Size (kb)	<i>About us</i>	<i>about.html</i>
<i>Flag</i>	21	<i>Projects</i>	<i>projects.html</i>
<i>Picuture 1</i>	150 kb	<i>History</i>	<i>history.html</i>
<i>Picuture 2</i>	178		
<i>Picuture 3</i>	161		
Background(s)	<i>White</i>	<i>Culture</i>	<i>contact.html</i>
		<i>Contact us</i>	

FIGURE 2-15

A storyboard is used for planning the Indigenous Language Trust website.

Formats and conventions

Formats and conventions apply to the layout and presentation of output. Using formats and conventions can enhance the appearance of information and make it more readable.

Screen size

Selecting the correct screen size is necessary. Even though the screen on which the website is designed may be quite large, it is important to remember that some users have smaller screens. The bottom of the index page should contain the recommended screen size for best viewing. The length of a line of text should not be longer than 60 characters (10 or 11 words). This enables monitors with a variety of screen settings to display the text.

The **index or home page** of a website should contain important information to users, such as:

- a contact email address
- date of last modification of the website
- the author or company's name and contact details.

General tips for effective website solution design

There are many general formats and conventions used in designing an effective website.

- Place most of the text and images of webpages within the dimensions of the screen size, so that users don't have to scroll down the page.

XXXXXXXXXX
XXXXXX
XXXXXX
XXXXXXXXXX
XXXXXX
XXXXXXXXXX

FIGURE 2-16

An example of left text alignment

XXXXXXXXXX
XXXXXX
XXXXXX
XXXXXXXXXX
XXXXXX
XXXXXXXXXX

FIGURE 2-17

An example of right text alignment

XXXXXXXXXX
XXXXXX
XXXXXX
XXXXXXXXXX
XXXXXX
XXXXXXXXXX

FIGURE 2-18

An example of centre text alignment

XXXXXXXXXX
xxxxxx XXXXX
xxxxxxxx XXX
xxxx XXXXXXX
xxxxxxxx XXX
xxx XXXXXXX

FIGURE 2-19

An example of full text alignment

- The user should not need to scroll any page more than two average screen lengths. If the page demands more information than two screens, it should be divided into several pages. Horizontal scrolling should be avoided.
- Use bold and italics text sparingly. They are solely for emphasis of important words.
- Avoid underlining words: they may be confused with hyperlinks.
- Each webpage should have consistent navigation buttons.
- Each webpage should have a button that links it back to the index or home page. This allows for easy navigation and allows users to re-orient themselves if they get lost on the website.

Text

Alignment of text can be left, right, centre or fully aligned (justified), as shown in Figures 2-16 to 2-19. Choose one alignment for each page, and stick to it for the entire page.

Avoid using all upper-case letters except in some headings. Long sections of text typed in upper case are very difficult to read because all the words have a rectangular shape.

The term *fully aligned* is also known as ‘full justification’ and refers to text being aligned on the left margin of a column and spaced appropriately so that the last letter in a word on the each line is aligned with the right margin.

Font selection

Most webpages maintain the same font throughout the entire site. Sometimes different fonts are used in banners or headings; however, consistent use of fonts and sizes (usually between 9 and 12 points) is recommended.

Images

A graphic, or graphic image, such as a drawing, chart or photograph, is a digital representation of information. Graphics were the first media used to enhance the text-based Internet. The introduction of graphic-based web browsers allowed webpage developers to incorporate illustrations, logos and other images into webpages. Webpages use colourful graphic designs and images to convey messages. The source of any graphics or images used should be cited.

Style guides

As mentioned earlier style guides provide instructions to website developers about where to use different type sizes and fonts, and whether these should be in bold or italic. They can also contain information on colours and patterns to be used as backgrounds on webpages. Formats and conventions are also documented in the guides.

CASE STUDY:

ILT – Formats and conventions for the website

Initially, the designer of the Indigenous Language Trust website chose a red background with the organisation's logo titled in the background; however, it made the text very difficult to read, so the designer decided that a white background was appropriate to ensure that the page was clear, crisp and legible. The font colours chosen were black for text, and red and yellow for major headings.

Even though the Indigenous Language Trust website designer will be using a 19-inch screen, they need to be mindful that not all users would have the same screen size. The designer chose 1024 × 768 as the ideal screen resolution to ensure that the employees in the branch offices would be able to view the webpages without compromising the design.

On each page of the Indigenous Language Trust website, all text will be left-aligned. To ensure that consistency is applied, the navigation buttons will be on the left section of the website on each page, with the Indigenous Language Trust logo above the buttons and a graphic below them. This will make navigation easy to follow. Incorrect spelling and bad grammar discourage visitors from using the website. The designer of the website will also proofread each page carefully and use a spellchecker in Dreamweaver.

In summary, the Indigenous Language Trust website will observe the formats and conventions shown in Figure 2-20.

Resolution refers to the number of horizontal and vertical pixels in a monitor. For more about resolution, see Chapter X.

Think about IT 2-20

Visit a few of your favourite websites (not for too long) and determine the font size used for the body text. Is there consistency in font size as you navigate from page to page?

Background	White background
Files	Folders will be labelled 'public' and 'private', and project files will be stored in directories named after the Indigenous areas.
Alignment	All text will be left aligned.
Proximity	The navigation bar will appear at the left of every page (under the heading).
Repetition	Every page will have the same template, with the Indigenous Language Trust Logo in the top left-hand corner and a graphic under the navigation buttons.
Colours	The colour scheme is black for main text, red for main headings and yellow for subheadings.
Screen size	The design of the website will be made to accommodate a screen size of 1024 × 768.

Many spellcheckers favour American spellings, and can't always be relied on to choose the correct word, especially if one word has several different meanings and spellings (e.g. bare, bear).

FIGURE 2-20

Formats and conventions to be observed in the Indigenous Language Trust website

Identifying evaluation criteria

Evaluation criteria is used to judge whether a solution has fulfilled the requirement that were identified at the analysis stage of the problem-solving.

Often evaluation criteria is used identify whether the solution meets the needs of the organisation and it is often performed after the website has been accessed and used.

When identifying the evaluation criteria, we might use the description of efficiency and effectiveness as a scaffold.

Does the creation of the online community:

- allow people to access information in a timely manner (effectiveness)?
- allow members of the organisation to communicate more easily with members of the community (efficiency)?
- cut down on the costs associated with sharing information (efficiency)?

CASE STUDY:

ILT – Evaluation criteria

As part of the design stage of problem-solving, criteria should be established so that we can thoroughly evaluate that the site meets the needs of the organisation.

If, as part of the scope, we have identified that users should be able to login to a closed section of the website to access sensitive organizational information, then our evaluation criteria should clearly identify this.

Similarly, if the purpose of the website was to be user friendly, then as part of our evaluation criteria, we can survey the users to seek out their opinions on how user-friendly the site actually is.

Developing a prototype website

A **prototype** is a model or simulation of a website that demonstrates its functionality, partial navigation options and interface.

The development stage of a problem-solving methodology involves:

- using the appropriate software to build a solution as outlined at the design stage
- Using validation to ensure reasonable data is being used
- testing the solution to ensure it performs as expected.

Validation

Validation involves checking data for accuracy and completeness. This can be done either manually or electronically.

Manual validation requires the data entry person to check the data to ensure that it is correct and/or reasonable via means such as proofreading a document and checking for correct spelling, grammar and punctuation. Checking numerical data for accuracy of transcription and reasonableness is another form of manual validation.

Electronic validation uses software features such as spelling and grammar checking to verify accuracy.

A prototype website demonstrates navigation options, a user interface and the overall functionality of a website. Features are not fully functional, but the user should be able to get an idea of how it will operate when fully developed.

The designer of the Indigenous Language Trust website will have to ensure that

- the spelling is checked on the word processor using a spellchecker
- the labelling of photographs is checked manually
- the placement of text and graphics is checked to ensure that text flows logically and is associated with appropriate photographs.

Manipulation to build a solution

Manipulation occurs when the data is transformed into information and often involves more than editing and formatting content. When building a website, manipulation can take many forms.

- Image compression is one of the most time-consuming and important manipulation tasks of a web designer. If the images are not compressed appropriately, not only can the aesthetic look of the site be affected, but so too can the time it takes to load the site when users try to access it. It is vital that a website loads quickly; if it doesn't, the visitor will look elsewhere.
- Copying data from a word-processed document, reformatting it and placing it on a webpage is another example of manipulating data into information. A web designer might use **cascading style sheets** to simplify this stage, ensuring every page has common formats and conventions.
- **Meta tags** also need to be applied to every image being used, so that the accessibility and meaning of the website is not compromised by a slow Internet connection.
- Other manipulation tasks include creating navigation structures, inserting links and designing forms for data gathering.

A **cascading style sheet (CSS)** is used to ensure that text and links use common formats on every page of a website. If the client wants a different colour heading, the CSS file gets changed rather than the web designer having to go in and manipulate every webpage.

Meta tags are not only used for images, they are also used by web designers to ensure that search engine bots record accurate information about their website. Meta tags are often found within the HTML code at the start of a webpage.



FIGURE 2-21

Original photo of Enterprise Park in Melbourne

UNCORRECTED SAMPLE CHAPTER 2P

Cropping a graphic removes a part of it. For example, a photograph of four people dining at two tables could be reduced to a picture of two people dining at one table.

Scaling a graphic retains the whole graphic but displays it at a size that is smaller or larger than the original.



FIGURE 2-22

Cropped image for the Indigenous Language Trust of the totems in Enterprise Park in Melbourne

CASE STUDY:

ILT – Building a prototype website

As part of the development stage of problem-solving, the Indigenous Language Trust has asked you to provide them with a prototype website of the solution. They should be able to navigate easily through the prototype website. The appearance, including formats and conventions of the organisation, should be used consistently, as stated in the style guide.

If wikis, blogs or discussion forums are to be included, there should be adequate documentation to communicate to the organisation the purpose of these features. This might include a description of why the feature was chosen and an image showing what the wiki, blog or discussion forum might look like.

Testing your prototype solution

Testing your prototype might be difficult as, by definition, it is a website that does not have extended functionality. But there are sections that you can test to show that the intention of the website matches the scope of the solution.

UNCORRECTED SAMPLE CHAPTER 2P

Testing for function

If we re-visit the design stage, we see that our design tools clearly documented the function of the website. Building a test plan for the function of a website should include the thorough **testing** that:

- our webpages load up
- the navigation design works (this might include buttons or javascript objects)
- the cascading style sheet for the website is accessed by every page in the website
- both relative and absolute links within the website work properly.
- images or embedded media objects load up properly
- alt tags appear when images are turned off in the browser.

All functions that are built into the prototype need to be tested to ensure that they work.

Even though your prototype solution might not have the full functionality of a finished website, you need to test that site *could* meet the broadcast, information exchange and knowledge needs of the organisation.

Testing for appearance

It is important that the interface or appearance of a website works as well as the functions. If a website is hard to read or cannot be loaded by a particular screen size, then the usefulness of the solution will be compromised.

Testing for appearance might include testing that:

- acceptable formats and conventions have been applied throughout the website –this is easy if you have used cascading style sheets
- the appearance of the prototype website meets the gender, special and cultural needs of the users
- the message of the website is not compromised by a change in screen size
- you can easily identify the organisation on every webpage
- at the bottom of each page there is a clear indication of who created it and when it was last edited
- the navigation bar and the way ‘home’ is easily identified on every webpage.

Effective testing tables

The best way to demonstrate that you have tested your solution is through a **testing table** and annotated printouts.

A testing table needs to list:

- every test that needs to be conducted
- what test data needs to be used to perform the test
- the expected results if the test is performed
- what actually happens when the test is performed
- how errors are corrected if the test reveals that an improvement needs to be made.

Absolute links use the exact web address to access the page. Absolute links might be used when navigating to a site external to the prototype.

Relative links access a webpage in relation to where the link is placed. For example, a relative link from the home page might access a page located in another folder on the web server (e.g. /culture/index.htm). If the website is moved to another site, this relative link does not need to be changed.

Description of the test	Test data to be used	Expected results of the test	Actual results of the test	Are there errors to correct?
Test 1: Testing that the navigation bar works on the home page	Click on each link and follow it to determine that it works as expected.	Each link in the navigation bar works.	Link worked as expected.	Actual result = required result
Test 2: Testing that the closed section of the website is protected with a password	Test data #1: correct password Name: jai Password: letmein Test data #2: incorrect password Name: Jai Password: 1234	When the correct name and password are entered, the user will be taken to the closed section of the website. Typing in the incorrect password will result in a dialog box error.	Did not work as expected. See annotated screen dump to see result.	Actual result = incorrect result Check password for the 'closed' section of the website.
Test 3: Testing that home page speed is less than 5 seconds	Page size for index.html equals 34 Kb Theoretical worst case scenario modem speed = 56 Kbps (7 Kbps)	Expected loading time should be less than 5 seconds	Model loads page in 4.2 seconds (stopwatch)	Actual result = required result The download speed is OK.

FIGURE 2-23
Testing your solution.

What you should know

- 1 An **online community** is a group of people who meet in an online space to discuss and share information.
- 2 There are many **types** of online communities including social networks, professional networks and project-based communities.
- 3 An **avatar** is an image that represents a user in an online community.
- 4 **Social networking sites** allow people to connect and exchange information in an informal social setting. Members of these communities often have accounts under an alias.
- 5 **Professional or work-based communities** have stricter guidelines on what can be discussed or accessed. Members of this community tend to use their real names as they are building reputation.
- 6 **Project- and interest-based communities** are often open to the public and have free membership.
- 7 Online communities are often set up to **broadcast** information, discuss or **exchange information** and store or develop organisational **knowledge**.
- 8 **Broadcasting** information often involves communicating what a community is doing, their vision or mission.
- 9 **Information exchange and collaboration** can often occur within a professional or work-based community.
- 10 **Knowledge exchange** within a community can occur within a structured environment such as a wiki or a commercial product such as Microsoft Sharepoint.
- 11 Tools to facilitate information exchange can often be categorised as **synchronous** and **asynchronous**.
- 12 **Synchronous** tools allow members of a community to communicate in real time. These might include chat rooms or video conferencing tools.
- 13 **Asynchronous** tools allow members of a community to communicate in their own time. These might include discussion forums or mailing lists.
- 14 A **collective identity** can often be displayed as buttons on community members' blogs and websites.
- 15 Online communities can appeal to a number of groups within our society categorised by gender, special needs, cultural needs and age.
- 16 Privacy of an online community might be guarded by a **verification procedure** for someone wanting to join that community.
- 17 Online communities often have **protocols** that govern how members need to conduct themselves within the community.
- 18 A **wiki** is a collaborative environment that allows members to read what the community has written, and by clicking an 'edit' button they can add or change the information.
- 19 A **blog** is a website that is usually maintained by a single author or a small group of people and broadcasts information in a chronological way. Often it acts as an online journal or diary.
- 20 An Internet or discussion **forum** is an online message board or discussion website that supports online communities.
- 21 **Social networking sites** include Facebook, LinkedIn, MySpace, Twitter, Flickr and Youtube.
- 22 **Problem-solving methodology** consists of analysis, design, development and evaluation.
- 23 **Analysing** a problem involves determining the solution requirements, identifying the constraints on the solution and determining the scope of the solution.
- 24 **Efficiency** refers to the time, cost and effort that might be put into producing a solution.
- 25 Effectiveness can be defined by the quality, relevance, timeliness and clarity of the information product.
- 26 A **prototype solution** allows the client to see how the website might look and potentially function, without spending the money on a fully fledged solution.
- 27 Designing the function of a website can be done with IPO charts, flowcharts, layout diagrams and website maps.
- 28 Designing how a website might appear can be done using mock-up diagrams, storyboard designs and layout diagrams.
- 29 Evaluation criteria can be used to test that a website will meet the needs of the users.
- 30 Manipulation occurs when data is processed into information.
- 31 A Cascading Style Sheet can be used to ensure that manipulated data has a consistent format throughout the website.

- 32** Meta tags can be used to ensure that the website is accurately recorded by the search engine bots.
- 33** Alt tags can be used to describe images if there is a special access need such as slow bandwidth or sight impairment.
- 34** Validation involves checking for accuracy and completeness.
- 35** When we test for function, we test for technical components of the website and how it might perform, including how fast it loads up, navigation design, Cascading Style Sheets, embedded objects and alt tags.
- 36** When we test for appearance, we test for formats and conventions, layout to meet the characteristics of the community and the message of the website.
- 37** An effective testing table ensures that the website is tested for function and appearance.
- 38** It is important that a testing table clearly identifies test that have to occur and the test data that needs to be used.

UNCORRECTED SAMPLE CHAPTER 2P

Test your knowledge



www.nelsonnet.com.au/infotech

Online communities

- 1 Identify the three different types of online communities and give an example of each one.
- 2 How do social networking sites pose a legal and ethical mind field for employers?
- 3 Discuss three differences between a social networking community and a professional community.
- 4 Under what circumstances would it be more appropriate to set up a blog rather than a wiki?
- 5 How do wiki sites cope with visitors who are intent on causing damage or being a nuisance?
- 6 What is a thread in an online forum? How are threads established?
- 7 What type of social networking sites would be appropriate for someone who wants to share stories, thoughts and photos with friends?
- 8 Give an example of an open and a closed online community.
- 9 If a website were to broadcast information and events, which online tools might they use?
- 10 How can a collective identify unite the members of an online community?
- 11 What strategies can a web developer use to ensure that a website suits the cultural needs of a group?
- 12 Describe a procedure that might be used to verify a user in an online community.
- 13 Give an example of a website that might impact on human rights requirements.
- 14 A local youth club wishes to create a website to build an online community. It hopes to broadcast information about its activities and support this with pictures of the children involved. Describe a constraint on data that needs to be considered.
- 15 Once a preferred solution has been established, a proposal is made to seek the approval of management for the solution to be designed and developed. What information should you provide for the submission?

Problem-solving methodology

- 16 Identify the four major steps involved in the problem-solving methodology.
- 17 Why is it best to rephrase a problem as a question?

- 18 Identify three ways in which you can efficiently design a website.
- 19 Identify three ways in which you can increase the effectiveness of a website.
- 20 How do functional design tools and design tools to show the appearance of a website differ?
- 21 A small community migrant group has set up an online community to assist new migrants when they arrive in Australia. The information that they have on their website needs to be translated into another language. Create an IPO chart that shows clearly how data is processed into information on this website.
- 22 A layout diagram can show both function and appearance. Create a layout diagram of your school's homepage and annotate it to show function and appearance.
- 23 Produce a flowchart that shows a verification process that a website might employ to ensure their online community is a closed community.
- 24 Why is it important to have a well thought out navigation design for an online community?
- 25 What features of a web publishing tool can you use to ensure that the formats and conventions that you use on every webpage are consistent?
- 26 Would it be advantageous to develop evaluation criteria before or after a prototype was created for an online community?

Developing a prototype website

- 27 What purpose does a prototype website serve?
- 28 Using a flowchart, describe how you might manipulate an image so that it is suitable for a website.
- 29 Why is it important to use features such as a Cascading Style Sheet when developing a website?
- 30 Discuss the importance of using a meta tags when developing a website?
- 31 Using a testing table, identify three tests that you can perform on a website that would test for function and three tests that would test for appearance.

UNCORRECTED SAMPLE CHAPTER 2P

Apply your knowledge



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The Outdoor Education Club at the Nelson Secondary College wishes to establish a website as a means of communicating with past and present members. The website is planned to have several pages that provide information regarding the types of activities performed by the Club, the mission of the Club, membership enquiries, a past members page, and contact details.

- 1 (a) The Club will locate its website on the College's network, making use of the College's hardware, software and Internet connection. What hardware and software specifically belonging to the College's network would the Club's website make use of?
- (b) A member has suggested that the website developer use Flash to make the site more interesting. Describe some of the effects the developer could build into the website using Flash.

The leader of the Club wishes to provide regular information and reports on his trips that members can read if they wish. It would function as a type of journal and will include some photos from the trips.

- 2 (a) What type of site would you recommend?
- (b) What software is required to establish this site?

Another member wishes to create a website that features the Club's major trip to the Grampians. She hopes that members will be able to contribute to the site with comments, pictures and perhaps videos. Members should be able to edit comments made by other members if they think they are incorrect.

- 3 (a) What type of site would you recommend? Why?
- (b) Can access to the site be limited just to members?
- 4 A local philanthropist, Mrs Oricio, wants to create a website that encourages the community to contribute to the local history of multi-cultural Springvale, a suburb south-east of Melbourne. Over the last 100 years Springvale has gone through tremendous change, as a migrant centre for refugees is an active part of the community. Mrs Oricio, wants people to

be able to create an account and login to the website and add their stories of how they came to live in Springvale. She also thinks that it would be a good idea if they could upload old photos of how the suburb looked when they arrived.

- (a) Identify the purpose of this website.
- (b) Identify the features that could be incorporated into this website to fulfill the Mrs Oricio's dream.
- (c) Are there any constraints that she needs to be aware of when creating this website?
- (d) Which three design tools would you use to plan out the function of this website?
- (e) Which three design tools would you use to plan out the appearance of this website?
- (f) Explain the advantage of first developing a prototype website for Mrs Oricio to look at.
- (g) What evaluation criteria would you use to ensure that the website would meet the needs of Mrs Oricio.
- (h) Identify three essential tests for function and three essential tests for appearance that you would perform to ensure that the solution worked.

UNCORRECTED SAMPLE CHAPTER 2P

Preparing for Unit 3 Outcome 1



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